

CLAIMS

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1 1. A method for satisfying a request for content from a web server, said  
2 method comprising:

3 (a) determining whether a response to the request can be delayed;

4 (b) processing the request to obtain the response in an intentionally  
5 delayed manner when said determining (a) determines that the response to  
6 the request can be delayed; and

7 (c) processing the request without any intentional delay when said  
8 determining (a) determines that the response to the request cannot be  
9 delayed.

1 2. A method as recited in claim 1, wherein said processing (b) allows a  
2 group of requests for the same content to be processed together so as to  
3 reduce congestion at the web server.

1 3. A method as recited in claim 1, wherein the intentionally delayed  
2 manner is based on a predetermined delay.

1 4. A method as recited in claim 3, wherein the intentionally delayed  
2 manner is based on at least one of a time delay and a quantity threshold.

1 5. A method for sending data over the Internet, said method comprising:

2 receiving a plurality of requests for a particular resource provided at a  
3 remote server on the Internet, the plurality of requests being provided by  
4 different requestors;

5 retrieving the particular resource from the remote server once for the  
6 plurality of requests to obtain the particular resource requested by the plurality  
7 of requests; and

8 thereafter sending the particular resource to the different requestors.

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1 6. A method as recited in claim 5, wherein the plurality of requests for the  
2 particular resource are all received within a predetermined period of time.

1 7. A method as recited in claim 6, wherein said requesting is performed  
2 after the oldest one of the plurality of requests has been delayed for the  
3 predetermined period of time.

1 8. A method as recited in claim 5, wherein said requesting is performed  
2 after a predetermined quantity of the plurality of requests have been received.

1 9. A method as recited in claim 5, wherein said requesting is performed  
2 after the oldest one of the plurality of requests has been delayed for the  
3 predetermined period of time or after a predetermined quantity of the plurality  
4 of requests have been received.

1 10. A method as recited in claim 9, wherein said sending of the particular  
2 resource to the different requestors comprises:

3 forming multi-destination data packets to carry data of the particular  
4 resource; and

5 transmitting the multi-destination data packets.

1 11. A method as recited in claim 5, wherein said sending of the particular  
2 resource to the different requestors comprises:

3 forming multi-destination data packets to carry data of the particular  
4 resource; and

5 transmitting the multi-destination data packets.

1 12. A method as recited in claim 5, wherein a data distribution center is  
2 coupled to the Internet to assist with the transfer of data, and

3 wherein said sending of the particular resource to the different  
4 requestors comprises:

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5 forming multi-destination data packets to carry data of the  
6 particular resource;  
7 transmitting the multi-destination data packets from the remote  
8 server to the data distribution center;  
9 converting the multi-destination data packets received at the  
10 data distribution center into single destination data packets; and  
11 transmitting the single-destination data packets from the data  
12 distribution center to the different requestors, thereby delivering the particular  
13 resource requested to the different requestors.

1 13. A method for servicing a request for a resource over a data network,  
2 said method comprising:

- 3 (a) receiving requests for resources;  
4 (b) temporarily storing the requests for resource in a queue;  
5 (c) identifying a request in the queue for a particular resource that has  
6 been waiting for more than a predetermined period of time;  
7 (d) requesting data for the identified request for the particular resource  
8 from a remote content server;  
9 (e) forming multi-destination data packets for responses to the  
10 identified request and other requests in the queue for the particular resource;  
11 and  
12 (f) transmitting the multi-destination data packets.

1 14. A method as recited in claim 13, wherein said forming (e) forms the  
2 multi-destination data packets for responses to the identified request and  
3 other of the requests in the queue for the particular resource that are destined  
4 for the same geographical region.

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1 / 15. A data transmission system for transmitting data from content servers  
2 to requestors through a data network, said data transmission system  
3 comprising:

4 a plurality of data distribution centers, said data distribution centers  
5 being connected to the data network,

6 wherein data transmissions between the content servers and said data  
7 distribution centers use a multi-destination format so as to reduce congestion.

1 16. A data transmission system as recited in claim 15, wherein the multi-  
2 destination format uses multi-destination data packets, the multi-destination  
3 data packets include at least multiple destination fields and a data field.

1 17. A data transmission system as recited in claim 15, wherein the data  
2 network is the Internet.

1 18. A data transmission system as recited in claim 15, wherein said data  
2 distribution centers are utilized between the content servers and the  
3 requestors.

1 19. A data transmission system as recited in claim 15, wherein data  
2 transmissions between said data distribution centers use a multi-destination  
3 format.

1 20. A data transmission system as recited in claim 15, wherein data  
2 distribution centers service a large number of content servers and only  
3 temporarily store data being requested and to be transmitted to the  
4 requestors.

1 21. A system for transmitting data through a data network from servers to  
2 clients, said system comprising:

3 a plurality of data distribution centers coupled to the data network; and

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4 server modules provided in the servers, said server modules operate to  
5 receive data to be transmitted to the clients and to form multi-destination  
6 packets to carry the data to at least one of said data distribution centers,

7 wherein said data distribution centers receive the multi-destination  
8 packets from said server modules and operates to convert the multi-  
9 destination packets into single-destination packets and to delivery the single-  
10 destination packets to the appropriate clients.

1 22. A system as recited in claim 21, wherein each of the data distribution  
2 centers is in a geographically different location.

1 23. A system as recited in claim 21, wherein the data network is a global  
2 computer network.

1 24. A system as recited in claim 21, wherein the multi-destination packets  
2 include a plurality of destination locations and data.

1 25. A method for transferring data through a data network from a server to  
2 clients, wherein the improvement comprises transferring the data between the  
3 server and a data distribution center using a multi-destination format, thereby  
4 reducing congestion at the server.

1 26. A method as recited in claim 25, wherein the data distribution center  
2 does not normally store the data residing on the server but instead obtains  
3 the data from the server when needed.

1 27. In a data network, a method for delivering a response from a server to  
2 requests from clients, wherein the improvement comprises processing the  
3 response in a group of responses for the same resource so as to reduce  
4 congestion at the server.

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- 1 28. A system for sending data over the Internet, said system comprising:
- 2 means for receiving a plurality of requests for a particular resource
- 3 provided at a remote server on the Internet, the plurality of requests being
- 4 provided by different requestors;
- 5 means for retrieving the particular resource from the remote server
- 6 once for the plurality of requests to obtain the particular resource requested
- 7 by the plurality of requests; and
- 8 means for thereafter sending the particular resource to the different
- 9 requestors.

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